INCH-POUND

MIL-R-83726/14C(USAF)
25 June 1993
SUPERSEDING
MIL-R-83726/14B(USAF)
9 August 1991

MILITARY SPECIFICATION SHEET

RELAYS, HYBRID, TIME DELAY (ON OPERATE), TYPE I, CLASS B, 10 AMPERES, 4PDT, HERMETICALLY SEALED, FIXED TIME, 0.100 TO 300 SECONDS

(C) Inactive for new design after 25 June 1993.
For new design use MIL-R-83726/28.

This specification is approved for use by the Department of the Air Force, and is available for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-R-83726.

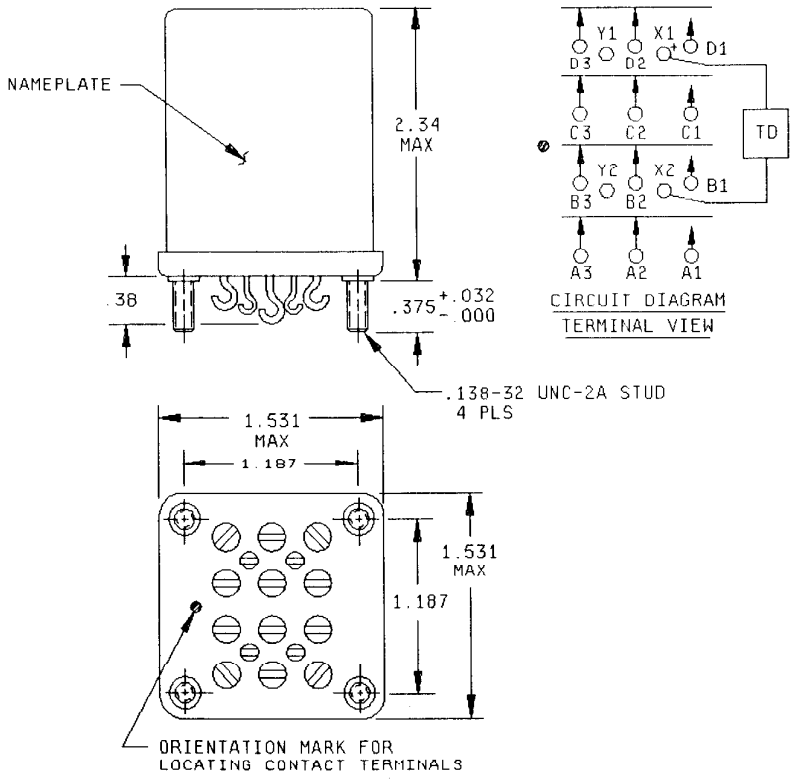
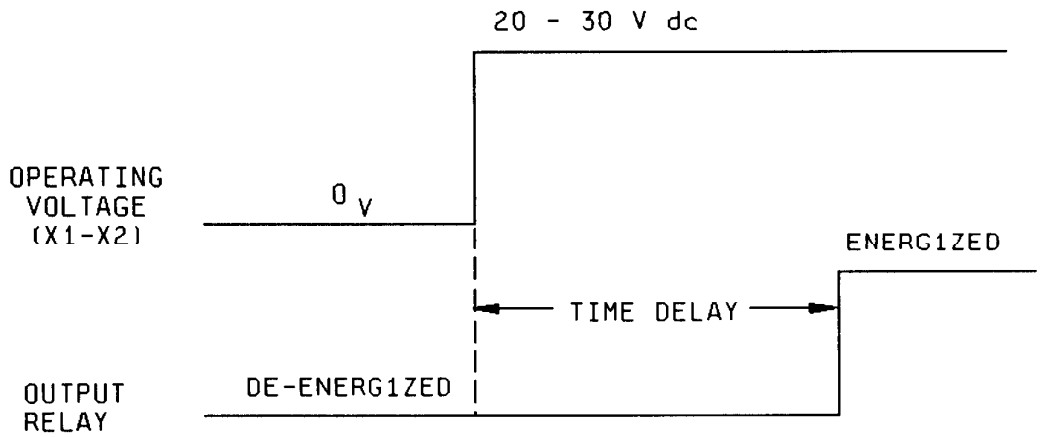


FIGURE 1. Outline dimensions and configuration of relay.

(C) denotes changes



TIMING DIAGRAM

Inches	mm
.032	0.81
.138	3.51
.375	9.53
.38	9.7
1.187	30.15
1.531	38.89
2.34	59.4

NOTES:
1. Dimensions are in inches.
2. Unless otherwise specified, tolerances are ±.010 (0.25 mm) for three place decimals and ±.03 (0.8 mm) for two place decimals.
3. Metric equivalents are given for general information only.
4. Terminal numbers shall not appear on the relay header and there shall be affixed to the relay a permanent legible circuit diagram that identifies each terminal location specified.

FIGURE 1. Outline dimensions and configuration of relay - Continued.

REQUIREMENTS:

Contact data:

Configuration: 4PDT.

Life/load ratings (relay case grounded):

Type of load	Life (cycles)	Amperes	
		28 V dc	115/200 volts 1 and 3 phase, 400 Hz
Resistive	100,000	10	10
Inductive	20,000	8	8
Motor	100,000	4	4
Lamp	100,000	2	2
Reduced current resistive	400,000	2.5	2.5

Contact voltage drop:

Initial: 0.150 volt.

After life tests: 0.175 volt.

Minimum current: Applicable in accordance with MIL-R-6106.

Contact bounce: 1 ms maximum.

Overload:

DC: 40 amperes.

AC: 60 amperes.

Rupture:

DC: 50 amperes.

AC: 80 amperes.

Input data:

Duty rating: Continuous.

Maximum voltage (over temperature range): 30 V dc.

Nominal voltage (over temperature range): 28 V dc.

Minimum voltage (over temperature range): 20 V dc.

Minimum voltage high-temperature test: 21 V dc.

Minimum voltage continuous current test: 23.5 V dc.

Maximum current at 25°C: 0.150 ampere.

Operate time: See table I.

TABLE I. Dash number and time delay characteristics. 1/ 2/

Dash number	Time delay seconds ±10%	Dash number	Time delay seconds ±10%	Dash number	Time delay seconds ±10%	Dash number	Time delay seconds ±10%
		-1202	12	-6502	65	-1703	170
-1000	.100 3/	-1402	14	-7002	70	-1803	180
-5000	.500 3/	-1602	16	-7502	75	-1903	190
-7500	.750 3/	-1802	18	-8002	80	-2003	200
-1001	1	-2002	20	-8502	85	-2103	210
-2001	2	-2202	22	-9002	90	-2203	220
-3001	3	-2502	25	-9502	95	-2303	230
-4001	4	-3002	30	-1003	100	-2403	240
-5001	5	-3502	35	-1103	110	-2503	250
-6001	6	-4002	40	-1203	120	-2603	260
-7001	7	-4502	45	-1303	130	-2703	270
-8001	8	-5002	50	-1403	140	-2803	280
-9001	9	-5502	55	-1503	150	-2903	290
-1002	10	-6002	60	1603	160	-3003	300

1/ Dash numbers represent commonly used delay times and do not constitute a complete listing of available dash numbers. Additional time delay relays within the .100- to 300-second delay range are available. To establish Part or Identifying Numbers (PIN's) not listed in table I (see "PIN" herein).
2/ The suffix letter W, X, or Y to designate quality level shall be added to the dash number (see "PIN" herein).
3/ Add ±10 milliseconds to ±10 percent tolerance.

Release time: 25 ms maximum.

Recycle time: 50 ms maximum.

Electrical data:

Insulation resistance at 500 V dc: 1/

Initial: 1,000 megohms minimum.

After life or environmental tests: 500 megohms minimum.

Dielectric strength (sea level):

	Initial	After life tests
Input (X1 - X2). 1/	1,000 V rms	1,000 V rms
All other points.	1,250 V rms	1,000 V rms

Dielectric strength (altitude) (80,000 feet): 2/

Input (X1 - X2): 350 V rms. 1/

All other points: 350 V rms.

1/ Input terminals X1 and X2 must be connected together during this test.
2/ Dielectric rating may be improved by suitable insulation of terminals and wiring after installation, 500 V rms at 80,000 feet.

Transients:

Transient voltage limits (input):

Surge positive: 80 V dc maximum. 3/

Power loss: 500 microseconds maximum.

Spike:

Self generated: ±50 V maximum.

Susceptibility: ±600 V maximum. 4/

RFI: MIL-STD-461, class 1D.

Environmental data:

Temperature range (operating): -55°C to +85°C.

Maximum altitude rating: 80,000 feet.

Shock g-level: 100 g's.

Duration: 6 ms.

Maximum duration contact opening: 10 microseconds, monitor in accordance with method 310 of MIL-STD-202.

Vibration (sinusoidal):

G-level: 20 g's.

Frequency range: 10 Hz to 3,000 Hz.

Vibration (random): Applicable in accordance with MIL-STD-202, method 214, test condition 1B.

Power spectral density: 0.4 g^2/Hz.

Frequency range: 50 Hz to 2,000 Hz.

Duration: 15 minutes each plane.

Seal: Not applicable.

Humidity: 95 percent relative humidity.

Physical data:

Dimensions and configuration: See figure 1.

Terminations: Solder hook.

Terminal strength: 3 ±0.5 pounds pull.

Weight: 10 ounces maximum.

3/ In accordance with MIL-STD-704, figure 9, limit 1, duty cycle 2 percent.
4/ In accordance with MIL-STD-704, figure 17, 0 to 500 microseconds, duty cycle 2 percent.

Marking: See MIL-R-83726. In addition, relays shall be marked with the ESDS identifier as specified in MIL-STD-1285.

ESDS protection program: The manufacturer shall establish and maintain an ESD control program in accordance with MIL-STD-1686 for mission critical equipment. Evidence of such compliance shall be verified by the qualifying activity of this specification as a prerequisite for qualification and continued qualification. This program shall be documented by an ESD control plan which must be under document control. As a minimum, this plan must address the identification of ESDS sub-components and end items, facilities, training, design protection, handling procedures, marking, cleaning, preservation, packaging, and quality assurance. A model ESD control program is available from the qualifying activity and may be used as a guideline. Further guidance for ESD control is available from the EOS/ESD Association and the Electronics Industry Association (EIA). This requirement is applicable to all manufacturers who handle ESDS component parts and materials in the relay manufacturing or testing process. This requirement is not limited to manufacturers qualifying ESDS end items.

ESDS verification: As a part of qualification or qualification after redesign, ESD testing shall be done in accordance with method 3015 of MIL-STD-883 modified to test at 16,000 volts. Testing at lower voltage levels is not required. This testing shall be accomplished as part of the group III for qualification inspection and as part of the group C inspection.

ESDS preservation and packaging: Relays shall be preserved and packaged in such a manner as to ensure that the integrity of ESD sensitive relays is not diminished. ESD sensitive relays shall be preserved and packaged in accordance with the requirements of MIL-STD-1686.

Part or Identifying Number (PIN): Consists of the prefix M83726/14-, a four-digit dash number expressed in milliseconds, and a quality level indication as follows:

M	83726/14-	1001	W

Military designation

Specification sheet number

The first three digits are significant; the fourth digit is the number of zeros to follow the first three digits. The time delay is expressed in milliseconds and converted to seconds. (See examples.)

Quality level 5/ indication (W, Y, or X). Refer to MIL-R-83726.

EXAMPLES: M83726/14-1000W - 100 millisecond time delay, W level
M83726/14-1001X - 1 second time delay, X level
M83726/14-3003Y - 300 second time delay, Y level

(C) QUALITY CONFORMANCE INSPECTION:

Performance of groups B and C tests are not applicable.

5/ Any relays numbered prior to the date of this specification without a quality level indication shall be considered interchangeable (store and issue) with the "W" quality level.

CONCLUDING MATERIAL

Custodian:
Air Force - 85

Review activities:
Air Force - 99
DLA - ES

Preparing activity:
Air Force - 85

Agent:
DLA - ES

(Project 5945-F743-03)